UNIVERSITY OF HAWAII
LIBRARY

LIBRARY USE ONLY

EXPERIMENTAL CELL RESEARCH

VOLUME 59 · 1970

EXPERIMENTAL CELL RESEARCH

Published under the auspices of

THE INTERNATIONAL SOCIETY FOR CELL BIOLOGY

EXECUTIVE EDITORS

T. CASPERSSON · T. GUSTAFSON · D. MAZIA

ASSOCIATE EDITOR

N. R. RINGERTZ

ADMINISTRATIVE EDITOR

VERA RUNNSTRÖM-REIO

EDITORIAL OFFICE

KAROLINSKA INSTITUTET, S-104 01 STOCKHOLM 60, SWEDEN

EDITORS

M. ABERCROMBIE · W. BERNHARD · J. BRACHET · M. CHÈVREMONT · A. ENGSTRÖM
E. FAURÉ-FREMIET · G. FOLEY · G. KLEIN · O. LINDBERG · G. MONTALENTI
A. MOSCONA · J. PAUL · SIR JOHN RANDALL · J. RUNNSTRÖM
F. O. SCHMITT · C. H. WADDINGTON · R. W. G. WYCKOFF · E. ZEUTHEN

VOLUME 59 · 1970

ACADEMIC PRESS, New York and London

COPYRIGHT, © 1970, BY ACADEMIC PRESS INC.

All Rights Reserved

No part of this book may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers

Printed in Sweden by

Almqvist & Wiksells Boktryckeri AB

Uppsala 1970

TABLE OF CONTENTS

NUMBER 1, JANUARY 1970

Jenkin, H M, Anderson, L E, Holman, R T, Ismail, I A & Gunstone, F D, The effect of isomeric *cis*-octadecenoic acids on the growth of monkey kidney cells (LLC-MK_2) 1

Jenkin, H M & Anderson, L E, The effect of oleic acid on the growth of monkey kidney cells (LLC-MK_2) 6

Norberg, B, Amoeboid movements and cytoplasmic fragmentation of glycerinated leukocytes induced by ATP 11

Puža, V & Gayer, J, Prevention of origin of adenosine effect in nucleolus under influence of RNase and pepsine 22

Fitzgerald, P H & Brehaut, L A, Depression of DNA synthesis and mitotic index by colchicine in cultured human lymphocytes 27

Pederson, T & Gelfant, S, G2-population cells in mouse kidney and duodenum and their behavior during the cell division cycle 32

Isaka, S, Hotta, K & Kurokawa, M, Jelly coat substances of sea urchin eggs. I. Sperm isoagglutination and sialopolysaccharide in the jelly 37

Modak, S P & Perdue, S W, Terminal lens cell differentiation. I. Histological and microspectrophotometric analysis of nuclear degeneration 43

Philpott, G W, Growth and cytodifferentiation of embryonic chick lens epithelial cells in vitro 57

Yasmineh, W G & Yunis, J J, Localization of mouse satellite DNA in constitutive heterochromatin 69

Hollyfield, J G & Adler, R, Localization of embryonic cells and polystyrene particles within chick embryos after vascular dissemination 76

Stockert, J C, Fernández-Gómez, M E, Sogo, J M & López-Sáez, J F, Nucleolar segregation by adenosine 3′-deoxyriboside (cordycepin) in root-tip cells of *Allium cepa* 85

Schindler, R, Ramseier, L, Schaer, J C & Grieder, A, Studies on the division cycle of mammalian cells. III. Preparation of synchronously dividing cell population by isotonic sucrose gradient centrifugation 90

Betel, I, Appelman, A W M & Graver, M A, On the role of phosphate and phosphoprotein in thymocyte interphase death 97

Allen, J M & Cook, G M W, A study of the attachment phase of phagocytosis by murine macrophages 105

Gamow, E I & Prescott, D M, The cell life cycle during early embryogenesis of the mouse 117

Follett, E A C & Goldman, R D, The occurrence of microvilli during spreading and growth of BHK21/C13 fibroblasts 124

Jainchill, J L & Todaro, G J, Stimulation of cell growth in vitro by serum with and without growth factor. Relation to contact inhibition and viral transformation 137

Horikawa, M, Nikaido, O, Tanaka, T, Nagata, H & Sugahara, T, Carcinogenesis in tissue culture. X. Rejoining of single-strand breaks in DNA of mammalian cells induced by chemical carcinogens (4-nitroquinoline 1-oxide and its derivative) in vitro 147

PRELIMINARY NOTES

Monroy, E, New findings related to pinocytosis 153

Humphries, A A, Jr, Incorporation of ^{35}S-sulfate into the oviducts and egg jelly of the newt, *Notophthalmus viridescens* 157

Jones, R O & Ashwood-Smith, M J, Some preliminary observations on the biochemical and biological properties of an epithelial growth factor 161

Schuster, G S & Hare, J D, Some characteristics of an inhibitable thymidine uptake system in mammalian cells 163

Reith, A, Oftebro, R & Seljelid, R, Incorporation of ^{3}H-glucosamine in HeLa cells as revealed by light and electron microscopic autoradiography 167

Summers, R G, The effect of actinomycin D on demembranated *Lytechinus variegatus* embryos 170

Parsa, I, Marsh, W H & Fitzgerald, P J, Chemically defined medium for organ culture differentiation of rat pancreas anlage 171

NUMBER 2, FEBRUARY 1970

Cornell, R, Ultrastructural variants among peripheral vesicles and vacuoles of murine embryo cell strains 177

Frank, W & Zabel, S, Über die Bedeutung von Kälberserum für Kulturen embryonaler Rattenzellen 186

Hess, M W & Lüscher, E F, Macrophage receptors for IgG aggregates 193

Monesi, V, Molinaro, M, Spaletta, E & Davoli, C, Effect of metabolic inhibitors on macromolecular synthesis and early development in the mouse embryo 197

Nilsson, G, Thymidine and uridine metabolism at cell growth inhibition of HeLa cells by human liver extract 207

Miura, Y & Wilt, F H, The formations of blood islands in dissociated-reaggregated chick embryo yolk sac cells 217
Paul, J S & Mateyko, G M, Quantitative interference microscopy of polytene chromosomes. I. Cytophysical studies on refractive index and dry mass concentration 227
Paul, J S & Mateyko, G M, Quantitative interference microscopy of polytene chromosomes. II. Cytochemical studies via ultramicrospectrophotometry 237
Sörén, L, Nuclear and cytoplasmic protein accumulation in PHA-stimulated human lymphocytes during blastogenesis 244
Rafferty, N S & Gfeller, E, ^{3}H-thymidine mediated and delayed nuclear labeling in frog lens epithelium 249
Aoki, Y & Moore, G E, Comparative study of mitotic stages of cells derived from human peripheral blood 259
Young, R S, Deal, P H, Souza, K A & Whitfield, O, Altered gravitational field effects on the fertilized frog egg 267
Rabinovitch, M, De Stefano, M-J, Interactions of red cells with phagocytes of the wax-moth (*Galleria mellonella*, L.) and mouse 272
Casanello, D E & Gerschenson, L E, Some morphological and biochemical characteristics of isolated rat liver cells dissociated with sodium tetraphenylboron and cultured in suspension 283
Lodin, Z, Booher, J & Kasten, F H, Long-term cultivation of dissociated neurons from embryonic chick dorsal root ganglia in the Rose chamber 291
Kinoshita, Y, Kimura, S, Takeshita, T, Kimura, E, Yukioka, M & Morisawa, S, Isolation of heterogeneous lymphocytes according to their cellular densities by multilayer centrifugation and detection of the separated fraction containing the immunological memory cells 299
Kohen, E, Kohen, C & Thorell, B, Intracellular enzyme kinetics in triiodothyronine-grown ascites cell cultures 307
Coleman, A W, Coleman, J R, Kankel, D & Werner, I, The reversible control of animal cell differentiation by the thymidine analog, 5-bromodeoxyuridine 319
Orlova, L V & Rodionov, V M, The time of histone synthesis in regenerating rat liver 329

PRELIMINARY NOTES

Masters, E M, Mitotic activity in cultured brown fat cells 334
Wehrli, E, Mühlethaler, K & Moor, H, Membrane structure as seen with a double replica method for freeze fracturing 336
Lee, J C & Yunis, J J, Constitutive heterochromatin during early embryogenesis of mammals 339
Deuchar, E M, Effect of cell number on the type and stability of differentiation in amphibian ectoderm 341
Inoue, S, Buday, A & Cousineau, G H, Developing fertilization membranes 343
Mizuhira, B, Amakawa, T, Yamashina S, Shirai, N & Utida, S, Electron microscopic studies on the localization of sodium ions and sodium-potassium-activated adenosinetriphosphatase in chloride 346

NUMBER 3, MARCH 1970

Asahina, E, Shimada, K & Hisada, Y, A stable state of frozen protoplasm with invisible intracellular ice crystals obtained by rapid cooling 349
Hammond, E, Ultrastructural characteristics of surface IgM reactive malignant lymphoid cells 359
Bryan, J & Sato, H, The isolation of the meiosis in spindle from the mature oocyte of *Pisaster ochraceus* 371
Pihl, E & Bahr, G F, A new approach to the study of cell organelles with the electron microscope 379
Fenton, E L, Tissue culture assay of nerve growth factor and of the specific antiserum 383
Abercrombie, M, Heaysman, J E M & Pegrum, S M, The locomotion of fibroblasts in culture. I. Movements of the leading edge 393
Ruddle, F H & Rapola, J, Changes in lactate dehydrogenase and esterase-specific activities, isozymic patterns, and cellular distribution during the growth cycle of PK cells in vitro 399
Fiel, R J, Small angle light scattering of bioparticles. I. Model systems 413
Fiel, R J & Munson, B R, Small angle light scattering of bioparticles. II. Cells and cellular organelles 421
Kuroda, Y, Differentiation of ommatidium-forming cells of *Drosophila melanogaster* in organ culture 429
Sillevis Smitt, W W, Nanni, G, Rozijn, Th H & Tonino, G J M, Sedimentation characteristics of RNA from isolated yeast nuclei 440
Fried, J, Mean, geometric mean, or median grain count in cell cycle studies 447
Fredborg, A & Lindahl, P E, Decreased glutathione-reductase activity in the mitotic Ehrlich ascites-tumour cell 452
Rasmussen, L & Kludt, T A, Particulate material as a prerequisite for rapid cell multiplication in *Tetrahymena* cultures 457
Hinderer, H, Volm, M & Wayss, K, Spezifische Hemmung der DNS-Synthese von HeLa-Zellen durch Endometrium-Extrakt 464
Wray, W & Stubblefield, E, A new method for the rapid isolation of chromosomes, mitotic apparatus, or nuclei from mammalian fibroblasts at near neutral pH 469

PRELIMINARY NOTES

De Vincentiis, M & Lancieri, M, Observations on the development of the sea urchin embryo in the presence of actinomycin 479

Stevens, M, Procedures for induction of spawning and mitotic maturation of starfish oocytes by treatment with 1-methyladenine 482

Hatfield, I, Schulze, L & Ernst, D, Measurement of the ultraviolet absorption in specific parts of both living and fixed mammalian cells, using a specially designed microspectrophotometer 484

Brachet, J & Hulin, N, Chromatin activation in differentiating and dividing cells 486

Payne, M R, Dancis, J, Berman, P H & Balis, M E, Inosine kinase in leucocytes of Lesch-Nyhan patients 489

Copley, A L & Scheinthal, B M, Nature of the endoendothelial layer as demonstrated by ruthenium red 491